

**PENINGKATAN KEMAMPUAN PENALARAN PROPORSIONAL
DAN PENCAPAIAN *SELF-REGULATED LEARNING*
SISWA SEKOLAH MENENGAH PERTAMA MELALUI MODEL
PROBLEM-BASED LEARNING DITINJAU DARI GAYA KOGNITIF**

TESIS

(diajukan untuk memenuhi sebagian syarat untuk memperoleh gelar
Magister Pendidikan Program Studi Pendidikan Matematika)



Oleh

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SEKOLAH PASCASARJANA
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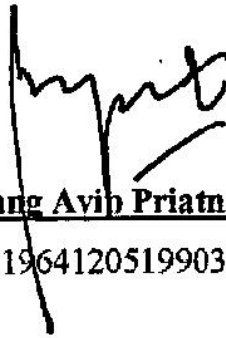
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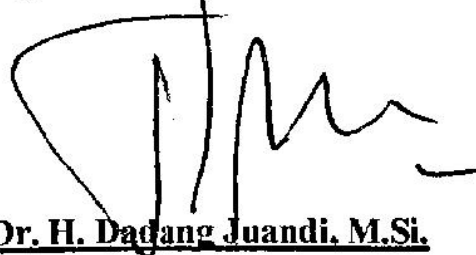


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ABSTRAK

Ghina Farras Ayuningtyas (1707699). Peningkatan Kemampuan Penalaran Proporsional dan Pencapaian *Self-Regulated Learning* Siswa Sekolah Menengah Pertama Melalui *Problem-Based Learning* Ditinjau dari Gaya Kognitif

Tujuan dari penelitian ini adalah untuk mengetahui perbandingan peningkatan kemampuan penalaran proporsional dan pencapaian *self-regulated learning* antara siswa yang memperoleh *problem-based learning* dan siswa yang memperoleh pembelajaran konvensional, baik secara keseluruhan maupun ditinjau dari gaya kognitif. Metode penelitian yang digunakan adalah kuasi eksperimen dengan *pre-test and post-test non-equivalent control group design*. Penelitian ini dilakukan terhadap siswa kelas VII (11-13 tahun) di salah satu Sekolah Menengah Pertama yang berlokasi di Kabupaten Bandung. Sampel penelitian terdiri atas 77 siswa yang terbagi ke dalam dua kelas yaitu 39 siswa di kelas *problem-based learning* dan 38 siswa di kelas konvensional. Hasil penelitian menunjukkan bahwa 1) peningkatan kemampuan penalaran proporsional siswa yang memperoleh *problem-based learning* lebih tinggi secara signifikan daripada siswa yang memperoleh pembelajaran konvensional; 2) peningkatan kemampuan penalaran proporsional siswa yang memperoleh *problem-based learning* lebih tinggi secara signifikan daripada siswa yang memperoleh pembelajaran konvensional ditinjau dari gaya kognitif; 3) pencapaian *self-regulated learning* siswa yang memperoleh *problem-based learning* tidak lebih baik secara signifikan daripada siswa yang memperoleh pembelajaran konvensional; dan 4) pencapaian *self-regulated learning* siswa yang memperoleh *problem-based learning* tidak lebih baik secara signifikan daripada siswa yang memperoleh pembelajaran konvensional ditinjau dari gaya kognitif.

Kata kunci: Kemampuan penalaran proporsional, *self-regulated learning*, *problem-based learning*, gaya kognitif

ABSTRACT

Ghina Farras Ayuningtyas (1707699). Proportional Reasoning Ability Enhancement and Self-Regulated Learning Achievement of Junior High School Students through Problem-Based Learning Viewed from Cognitive Style

This research aims to analyze students' proportional reasoning ability and self-regulated learning, particularly for those who acquired problem-based learning and conventional learning that both reviewed as a whole and based on cognitive style. The method used was quasi-experimental with pre-test and post-test non-equivalent control group design. The research was conducted for grade VII students (11-13 years) in one of Junior High School located at Bandung Regencies. The number of samples involved was 77 students (39 students in problem-based learning class and 38 students in a conventional class). The results showed that 1) the enhancement of proportional reasoning ability of students who acquired problem-based learning was significantly higher than students who acquired conventional learning; 2) the enhancement of proportional reasoning ability of students who acquired problem-based learning was significantly higher than students who acquired conventional learning in terms of cognitive style; 3) the achievement of self-regulated learning of students who acquired problem-based learning was not significantly better than students who acquired conventional learning; 4) the achievement of self-regulated learning of students who acquired problem-based learning was not significantly better than students who acquired conventional learning in terms of cognitive style.

Keywords: Proportional reasoning ability, self-regulated learning, problem-based learning, cognitive style

DAFTAR ISI

PERNYATAAN.....	iv
KATA PENGANTAR	v
UCAPAN TERIMA KASIH.....	vi
ABSTRAK	viii
<i>ABSTRACT</i>	ix
DAFTAR ISI.....	x
DAFTAR TABEL.....	xii
DAFTAR GAMBAR	xiv
DAFTAR LAMPIRAN	xv
BAB I PENDAHULUAN	
1.1 Latar Belakang Masalah	1
1.2 Rumusan Masalah.....	12
1.3 Tujuan Penelitian	13
1.4 Manfaat Penelitian	13
BAB II KAJIAN PUSTAKA	
2.1 Kemampuan Penalaran Proposional	15
2.2 <i>Self-Regulated Learning</i>	20
2.3 Gaya Kognitif.....	23
2.4 <i>Problem-Based Learning</i>	25
2.5 Pembelajaran Konvensional.....	30
2.6 Teori Belajar yang Relevan.....	32
2.7 Hasil Penelitian yang Relevan	34
2.8 Kerangka Berpikir.....	38
2.9 Hipotesis Penelitian.....	44
BAB III METODE PENELITIAN	
3.1 Desain Penelitian	45
3.2 Populasi dan Sampel.....	46
3.3 Variabel Penelitian.....	46
3.4 Definisi Operasional	48
3.5 Perangkat Pembelajaran.....	49
3.6 Instrumen Penelitian	50

3.7	Prosedur Pengolahan Data	57
3.8	Prosedur Penelitian	61
3.9	Jadwal Penelitian	65
BAB IV HASIL PENELITIAN DAN PEMBAHASAN		
4.1	Hasil Penelitian	66
4.2	Pembahasan	89
BAB V KESIMPULAN DAN SARAN		
5.1	Kesimpulan	114
5.2	Saran	114
DAFTAR PUSTAKA		116
RIWAYAT HIDUP		250

DAFTAR TABEL

3.1 Keterkaitan antara Variabel Bebas, Variabel Terikat, dan Variabel Kontrol.....	47
3.2 Pedoman Penyebaran Tes Kemampuan Penalaran Proporsional.....	52
3.3 Kategori Tingkat Validitas	53
3.4 Validitas Butir Soal Tes Kemampuan Penalaran Proporsional	54
3.5 Kategori Tingkat Reliabilitas	54
3.6 Reliabilitas Tes Kemampuan Penalaran Proporsional	55
3.7 Pedoman Penyebaran Angket <i>Self-Regulated Learning</i>	55
3.8 Validitas Butir Pernyataan Angket <i>Self-Regulated Learning</i>	56
3.9 Reliabilitas Angket <i>Self-Regulated Learning</i>	56
3.10 Pedoman Pengelompokan Siswa berdasarkan Gaya Kognitif	57
3.11 Klasifikasi Gain Ternormalisasi (<i>N-Gain</i>)	58
3.12 Jadwal Penelitian.....	65
4.1 Kriteria Pengelompokan Gaya Kognitif.....	66
4.2 Data Sebaran Banyaknya Siswa berdasarkan Gaya Kognitif	67
4.3 Statistika Deskriptif Data Kemampuan Penalaran Proporsional	68
4.4 Hasil Uji Normalitas Data Pretes Kemampuan Penalaran Proporsional	70
4.5 Hasil Uji Kesamaan Data Pretes Kemampuan Penalaran Proporsional.....	71
4.6 Hasil Uji Normalitas Data <i>N-Gain</i> Kemampuan Penalaran Proporsional	71
4.7 Hasil Uji Perbedaan Data <i>N-Gain</i> Kemampuan Penalaran Proporsional	72
4.8 Hasil Uji Normalitas Data <i>N-Gain</i> Kemampuan Penalaran Proporsional Kelompok CA	74
4.9 Hasil Uji Perbedaan Data <i>N-Gain</i> Kemampuan Penalaran Proporsional Kelompok CA	75
4.10 Hasil Uji Normalitas Data <i>N-Gain</i> Kemampuan Penalaran Proporsional Kelompok Reflektif.....	76
4.11 Hasil Uji Homogenitas Data <i>N-Gain</i> Kemampuan Penalaran Proporsional Kelompok Reflektif.....	76
4.12 Hasil Uji Perbedaan Data <i>N-Gain</i> Kemampuan Penalaran Proporsional Kelompok Reflektif.....	77

4.13 Hasil Uji Normalitas Data <i>N-Gain</i> Kemampuan Penalaran Proporsional Kelompok Impulsif	78
4.14 Hasil Uji Homogenitas Data <i>N-Gain</i> Kemampuan Penalaran Proporsional Kelompok Impulsif	79
4.15 Hasil Uji Perbedaan Data <i>N-Gain</i> Kemampuan Penalaran Proporsional Kelompok Impulsif	80
4.16 Hasil Uji Normalitas Data <i>N-Gain</i> Kemampuan Penalaran Proporsional Kelompok LTA.....	81
4.17 Hasil Uji Homogenitas Data <i>N-Gain</i> Kemampuan Penalaran Proporsional Kelompok LTA	82
4.18 Hasil Uji Perbedaan Data <i>N-Gain</i> Kemampuan Penalaran Proporsional Kelompok LTA.....	83
4.19 Statistika Deskriptif Data <i>Self-Regulated Learning</i>	83
4.20 Hasil Uji Perbedaan Data SRL.....	85
4.21 Hasil Uji Perbedaan Data SRL Kelompok CA	86
4.22 Hasil Uji Perbedaan Data SRL Kelompok Reflektif.....	87
4.23 Hasil Uji Perbedaan Data SRL Kelompok Impulsif	88
4.24 Hasil Uji Perbedaan Data SRL Kelompok Lambat Tidak Akurat	89

DAFTAR GAMBAR

1.1	Contoh Soal Tipe <i>Missing Value</i>	5
1.2	Contoh Jawaban Siswa.....	5
2.1	Contoh Masalah <i>Missing Value</i>	17
2.2	Contoh Penggunaan <i>Building-up Strategy</i>	18
2.3	Fase <i>Self-Regulated Learning</i>	22
3.1	Desain Penelitian.....	45
3.2	Alur Penelitian	64
4.1	Diagram Rata-rata Skor Pretes Kemampuan Penalaran Proporsional	68
4.2	Diagram Rata-rata Skor <i>N-Gain</i> Kemampuan Penalaran Proporsional	69
4.3	Diagram Rata-rata Pencapaian <i>Self-Regulated Learning</i>	84
4.4	Pelaksanaan Tahapan Memberi Orientasi kepada Siswa	90
4.5	Pelaksanaan Tahapan Mengorganisasikan Siswa untuk Belajar.....	91
4.6	Pelaksanaan Tahapan Membantu Penyelidikan Individu atau Kelompok	92
4.7	Pelaksanaan Tahapan Mengembangkan dan Menyajikan Hasil Karya	93
4.8	Pelaksanaan Tahapan Menganalisis dan Mengevaluasi Proses Pemecahan Masalah.....	94
4.9	Diagram Peningkatan Kemampuan Penalaran Proporsional pada Setiap Indikator.....	97
4.10	Butir Soal Indikator Pertama.....	98
4.11	Contoh Jawaban Siswa pada Indikator Pertama	99
4.12	Butir Soal Indikator Kedua	100
4.13	Contoh Jawaban Siswa pada Indikator Kedua	101
4.14	Butir Soal Indikator Ketiga	102
4.15	Contoh Jawaban Siswa pada Indikator Ketiga.....	103
4.16	Butir Soal Indikator Keempat	104
4.17	Contoh Jawaban Siswa pada Indikator Keempat	105
4.18	Contoh Jawaban Siswa pada Setiap Kelompok Gaya Kognitif	107
4.19	Diagram Pencapaian <i>Self-Regulated Learning</i> pada Setiap Dimensi	110

DAFTAR LAMPIRAN

LAMPIRAN A PERANGKAT PEMBELAJARAN

A.1 Rencana Pelaksanaan Pembelajaran (RPP).....	121
A.2 Lembar Kerja Siswa (LKS) Kelas <i>Problem-Based Learning</i>	143
A.3 Lembar Kerja Siswa (LKS) Kelas Konvensional	157

LAMPIRAN B INSTRUMEN PENELITIAN

B.1 Instrumen <i>Matching Familiar Figures Test</i> (MFFT).....	171
B.2 Lembar Jawaban <i>Matching Familiar Figures Test</i> (MFFT).....	187
B.3 Kisi-kisi Instrumen Kemampuan Penalaran Proporsional	189
B.4 Tes Kemampuan Penalaran Proporsional	198
B.5 Kisi-kisi <i>Self-Regulated Learning</i>	200
B.6 Angket <i>Self-Regulated Learning</i>	201
B.7 Lembar Observasi	202

LAMPIRAN C ANALISIS UJI COBA INSTRUMEN

C.1 Skor Uji Coba Instrumen Kemampuan Penalaran Proporsional.....	214
C.2 Hasil Analisis Uji Coba Instrumen Kemampuan Penalaran Proporsional	215
C.3 Skor Uji Coba Angket <i>Self-Regulated Learning</i>	216
C.4 Hasil Analisis Uji Coba Angket <i>Self-Regulated Learning</i>	217

LAMPIRAN D HASIL PENELITIAN DAN UJI STATISTIK

D.1 Data Hasil Tes Gaya Kognitif	219
D.2 Data Hasil Pretes, Postes, dan <i>N-Gain</i> Kelas <i>Problem-based Learning</i>	221
D.3 Data Hasil Pretes, Postes, dan <i>N-Gain</i> Kelas <i>Problem-based Learning</i> berdasarkan Gaya Kognitif	225
D.4 Data Hasil Pretes, Postes, dan <i>N-Gain</i> Kelas Konvensional.....	227
D.5 Data Hasil Pretes, Postes, dan <i>N-Gain</i> Kelas Konvensional berdasarkan Gaya Kognitif.....	231
D.6 Data Hasil <i>Self-Regulated Learning</i> Kelas <i>Problem-based Learning</i>	233
D.7 Data Hasil <i>Self-Regulated Learning</i> Kelas <i>Problem-based Learning</i> berdasarkan Gaya Kognitif	235
D.8 Data Hasil <i>Self-Regulated Learning</i> Kelas Konvensional	237

D.9 Data Hasil <i>Self-Regulated Learning</i> Kelas Konvensional berdasarkan Gaya Kognitif	239
D.10 Analisis Data dan Uji Statistik	241
LAMPIRAN E DOKUMEN PENDUKUNG PENELITIAN	
E.1 Surat Izin Penelitian.....	248
E.2 Surat Keterangan Telah Melakukan Penelitian	249

DAFTAR PUSTAKA

- Ansori, Y., & Herdiman, I. (2019). Pengaruh Kemandirian Belajar terhadap Kemampuan Pemecahan Masalah Matematis Siswa SMP. *Journal of Medives: Journal of Mathematics Education IKIP Veteran Semarang*, 3(1), 11-19.
- Arends, R. I. (2008). *Learning to Teaching: Belajar untuk Mengajar*. Yogyakarta: Pustaka Pelajar.
- Arikunto, S. (2001). *Dasar-dasar Evaluasi Pendidikan*. Jakarta: Bumi Aksara.
- Ayan, R., & Isiksal-Bostan, M. (2018). Middle School Students' Proportional Reasoning in Real Life Contexts in the Domain of Geometry and Measurement. *International Journal of Mathematics Education in Science and Technology*, 1-17.
- Barrows, H. S. (1996). Problem-Based Learning in Medicine and Beyond: A Brief Overview. In L. Wilkerson, & W. H. Gijssels, *Bringing Problem-Based Learning to Higher Education: Theory and Practice. New Directions for Teaching and Learning Series* (pp. 3-12). San Francisco, CA: Jossey-Bass.
- Ben-Chaim, D., Keret, Y., & Ilany, B.-S. (2012). *Ratio and Proportion: Research and Teaching in Mathematics Teachers' Education (Pre- and In-Service Mathematics Teacher of Elementary and Middle School Classes)*. The Netherlands: Sense Publishers.
- Butler, D. L., & Winne, P. H. (1995). Feedback and Self-Regulated Learning: A Theoretical Synthesis. *Review of Educational Research*, 65(3), 245-281.
- Cerezo, N. (2004). Problem-Based Learning in the Middle School: A Research Case Study of The Perceptions of At-Risk Females. *Research in Middle Level Education*, 27(1), 1-13.
- Cramer, K., & Post, T. (1993). Connecting Research to Teaching Proportional Reasoning. *Mathematics Teacher*, 86(5), 404-407.
- Cramer, K., Post, T., & Currier, S. (1993). Learning and Teaching Ratio and Proportion: Research Implications. In D. Owens, *Research Ideas for the Classroom* (pp. 159-178). New York: Macmillan Publishing Company.
- Creswell, J. W. (2017). *Research Design: Pendekatan Metode Kualitatif, Kuantitatif, dan Campuran*. Yogyakarta: Pustaka Pelajar.
- Dewi, E. R., & Marsigit, M. (2019). The Implementation of Problem-Based Learning Viewed from Mathematical Connection Ability. *Journal of Physics: Conference Series*, 1157 042059, 1-7.
- Dolmans, D. H., Loyens, S. M., Héline, M., & Gijbels, D. (2015). Deep and Surface Learning in Problem-Based Learning: A Review of The Literature. *Advances in Health Sciences Education*, 1-26.

- Fauzi, A., & Widjajanti, D. B. (2018). Self-Regulated Learning: The Effect on Student's Mathematics Achievement. *Journal of Physics: Conference Series*, 1097 012139, 1-7.
- Graaff, E. D., & Kolmos, A. N. (2003). Characteristics of Problem-Based Learning. *International Journal of Engineering Education*, 19(5), 657-662.
- Hake, R. R. (1999). *Analyzing change/gain scores*. [Online]. Diakses dari: <http://www.physics.indiana.edu/~sdi/AnalyzingChange-Gain.pdf>
- Hajidah, R. (2017). Analisis Kemampuan Penalaran Proporsional Siswa Kelas VII pada Materi Perbandingan. (Skripsi). Fakultas Ilmu Tarbiyah dan Kependidikan, Universitas Islam Negeri Syarif Hidayatullah, Jakarta.
- Harel, G., & Behr, M. (1989). Structure and Hierarchy of Missing Value Proportion Problems and Their Representations. *Journal of Mathematical Behavior*, 8(1), 77-119.
- Hendriana, H., Rohaeti, E. E., & Sumarmo, U. (2017). *Hard Skills and Soft Skills Matematik Siswa*. Bandung: Refika Aditama.
- Hmelo, C. E., & Ferrari, M. (1997). The Problem-Based Learning Tutorial: Cultivating Higher Order Thinking Skills. *Journal for the Education of the Gifted*, 22(4), 401-422.
- Hmelo-Silver, C. E. (2004). Problem-based Learning: What and How Do Students Learn? *Educational Psychology Review*, 16(3), 235-266.
- Hmelo-Silver, C. E., & Barrows, H. S. (2006). Goals and Strategies of a Problem-Based Learning Facilitator. *Interdisciplinary Journal of Problem-Based Learning*, 1(1), 21-39.
- Kagan, J. R., Day, D., Albert, J., & Phillips, W. (1964). Information Processing in the Child: Significance of Analytic and Reflective Attitudes. *Psychological Monograph: General and Applied*, 78(1), 1-37.
- Kanimozhi, P., & Ganesan, P. (2017). Reasoning Ability among Higher Secondary Students. *International Journal of Research-Granthaalayah*, 5(6), 471-475.
- Lamon, S. J. (2012). *Teaching Fractions and Ratios for Understanding: Essential Content Knowledge and Instructional Strategies for Teachers*. United Kingdom: Routledge.
- Lesh, R., Post, T., & Behr, M. (1988). Proportional Reasoning. In J. Hiebert, & M. Behr, *Number Concepts and Operations in the Middle Grades* (pp. 93-118). Reston, VA: Lawrence Erlbaum & National Council of Teachers of Mathematics.
- Lim, K. H. (2009). Burning The Candles at Just One End: Using Nonproportional Example Helps Students Determine When Proportional Strategies Apply. *Mathematics Teaching in the Middle School*, 14(8), 492-500.

- Miatun, A., & Muntazhimah. (2018). The Effect of Discovery Learning and Problem-Based Learning on Middle School Students' Self-Regulated Learning. *Journal of Physics: Conference Series*, 948 012021, 1-7.
- Möhring, W., Newcombe, N. S., Levine, S. C., & Frick, A. (2016). Spatial Proportional Reasoning is Associated with Formal Knowledge about Fractions. *Journal of Cognition and Development*, 17(1), 67-84.
- Nasir, R. (2018). *Peningkatan Kemampuan Penalaran Proporsional dan Mathematical Resilience Siswa Melalui Schema-Based Instruction*. (Tesis). Sekolah Pascasarjana, Universitas Pendidikan Indonesia, Bandung.
- NCTM. (2000). *Principles and Standards for School Mathematics*. United States of America: National Council of Teachers of Mathematics.
- Nugraha, Y., Sujadi, I., & Pangadi. (2016). Penalaran Proporsional Siswa Kelas VII. *Beta Jurnal Tadris Matematika*, 9(1), 34-47.
- Nurjanah, & Dahlah, J. A. (2018). Improving Self-Regulated Learning Junior High School Students through Computer-Based Learning. *Journal of Physics: Conference Series*, 1013 012126, 1-8.
- Ontario. (2012). *Paying Attention to Proportional Reasoning*. Ontario: Queen's Printer.
- Özgun-Koca, A. A., & Altay, M. K. (2009). An Investigation of Proportional Reasoning Skills of Middle School Students. *Investigations in Mathematics Learning*, 2(1), 26-48.
- Palladino, P., Paola, P., Masi, G., & Marcheschi, M. (1997). Impulsive-Reflective Cognitive Style Metacognition, and Emotion in Adolescence. *Perceptual and Motor Skills*, 84, 45-57.
- Paris, S. G., & Paris, A. H. (2001). Classroom Applications of Research on Self-Regulated Learning. *Educational Psychologist*, 36(2), 89-101.
- Peraturan Menteri Pendidikan dan Kebudayaan Republik Indonesia Nomor 81A Tahun 2013 tentang Implementasi Kurikulum.
- Pintrich, P. R. (1995). Understanding Self-Regulated Learning. In P. R. Pintrich, *Understanding Self-Regulated Learning* (pp. 3-12). San Francisco, CA: Jossey-Bass.
- Pintrich, P. R. (2000). The Role of Goal Orientation in Self-Regulated Learning. In M. Boekaerts, P. R. Pintrich, & M. Zeidner, *Handbook of Self-Regulation* (pp. 451-502). San Diego CA, US: Academic Press.
- Prayitno, A., Alvia, R., Widayanti, F. D., Rahayuningsih, S., Hamid, A., & Baidawi, M. (2018). Characteristics of Students' Proportional Reasoning in Solving Missing Value Problem. *Journal of Physics: Conference Series*, 1114 012021, 1-6.

- Puspita, A. S., & Aloysius, A. (2019). Developing Students's Critical Thinking Skills through Implementation of Problem-Based Learning Approach. *Journal of Physics: Conference Series*, 1241 012020, 1-8.
- Riding, R. J., & Pearson, F. (1994). The Relationship between Cognitive Style and Intelligence. *Educational Psychology: An International Journal of Experimental Educationan Psychology*, 14(4), 413-425.
- Rozencwajg, P., & Corroyer, D. (2005). Cognitive Processes in the Reflective-Impulsive Cognitive Style. *The Journal of Genetic Psychology: Research and Theory on Human Development*, 166(4), 451-463.
- Salkind, N. J., & Wright, J. C. (1977). The Development of Reflection-Impulsivity and Cognitive Efficiency. *Human Development*, 20, 377-387.
- Sari, F. A., Yandari, I. A., & Fakhrudin. (2017). The Application of Problem-Based Learning Model to Improve Mathematical Literacy Skill and The Independent Learning of Students. *Journal of Physics: Conference Series*, 1-6.
- Satriawan, M. A., Budiarto, M. T., & Siswono, T. Y. (2018). Students' Relational Thinking of Impulsive and Reflective in Solving Mathematical Problem. *Journal of Physics: Conference Series*, 947 012030, 1-6.
- Schunk, D. H. (1990). Goal Setting and Self-Efficacy During Self-Regulated Learning. *Educational Psychologist*, 25(1), 71-86.
- Schunk, D. H. (2012). *Learning Theoris An Educational Perspective Teori-teori Pembelajaran: Perspektif Pendidikan*. Yogyakarta: Pustaka Pelajar.
- Shoimah, R. N., A, L., & E, S. T. (2018). The Creativity of Reflective and Impulsive Selected Students in Solving Geometric Problems. *Journal of Physics: Conference Series*, 947 012023, 1-6.
- Sockalingam, N., & Schmidt, H. G. (2011). Characteristics of Problems for Problem-Based Learning: The Students' Perspective. *Interdisciplinary Journal of Problem-Based Learning*, 5(1), 6-33.
- Sugiyono. (2012). *Statistika untuk Penelitian*. Bandung: Alfabeta.
- Suherman, E. (2003). *Evaluasi Pembelajaran Matematika*. Bandung: JICA.
- Tjoe, H., & Torre, J. d. (2013). On Recognizing Proportionality: Does the Ability to Solve Missing Value Problems Presuppose the Conception of Proportional Reasoning? *Journal of Mathematical Behavior*, 33(2014), 1-7.
- Tourniaire, F., & Pulos, S. (1985). Proportional Reasoning: A Review of the Literature. *Educational Studies in Mathematics*, 16, 181-204.
- Walle, J. A., Karp, K. S., & Bay-Williams, J. M. (2010). *Elementary and Middle School Mathematics: Teaching Developmentally*. United States of America: Pearson Education, Inc.

- Warli. (2009). Pembelajaran Kooperatif Berbasis Gaya Kognitif Reflektif-Impulsif (Studi Pendahuluan Pengembangan Model KBR-I). *Prosiding Seminar Nasional Penelitian, Pendidikan, dan Penerapan MIPA Fakultas MIPA*, (pp. 567-574). Yogyakarta.
- Warli. (2010). *Profil Kreativitas Siswa yang Bergaya Kognitif Reflektif dan Siswa yang Bergaya Kognitif Impulsif dalam Memecahkan Masalah Geometri*. (Disertasi). Program Pascasarjana, Universitas Negeri Surabaya, Surabaya.
- Winne, P. H., & Perry, N. E. (2000). Measuring Self-Regulated Learning. In M. Boekaerts, P. R. Pintrich, & Z. M, *Handbook of Self-Regulation* (pp. 531-566). San Diego, CA, US: Academic Press.
- Zelniker, T., & Jeffrey, W. E. (1976). Reflective and Impulsive Children: Strategies of Information Processing Underlying Differences in Problem Solving. *Monographs of the Society for Research in Child Development*, 41(5), 1-59.
- Zimmerman, B. J. (1986). Becoming a Self-Regulated Learner: Which Are the Key Subprocesses. *Contemporary Educational Psychology*, 11, 307-313.
- Zimmerman, B. J. (1990). Self-Regulated Learning and Academic Achievement: An Overview. *Educational Psychologist*, 26(1), 3-17.
- Zimmerman, B. J. (2015). Self-Regulated Learning: Theories, Measures, and Outcomes. *International Encyclopedia of the Social & Behavioral Sciences*, 21(2), 541-546.
- Zumbrunn, S., Tadlock, J., & Roberts, E. D. (2011). Encouraging Self-Regulated Learning in the Classroom: A Review Literature. *Metropolitan Educational Research Consortium (MERC)*. Virginia Commonwealth University.
- Zuraida, D. A., Suryaningtyas, S., & Nurwijayanti, K. (2017). Meningkatkan Self-Regulated Learning Siswa Melalui Pendekatan Problem-Based Learning dengan Setting Numbered Heads Together. *Seminar Matematika dan Pendidikan Matematika* (pp. 231-236). Yogyakarta: UNY.